

## The genus *Myrioblephara* Warren and allied genera (Geometridae, Ennominae) in Sumatra

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2-27-29 Shindori-nishi, Niigata, 950-2036 Japan

**Abstract** Twenty species of the genera *Myrioblephara*, *Necyopa*, *Calcyopa*, *Ectropidia* and *Nigriplephara* are recorded from Sumatra. *M. sinesigno*, *M. berastagensis*, *M. ediehli* and *E. minilepidaria* are described as new to science, and *M. pingasoides*, *N. triangularis*, *N. ioge* and *E. faircloughi* are newly recorded.

**Key words** *Myrioblephara*, *Necyopa*, *Calcyopa*, *Ectropidia*, *Nigriplephara*, Boarmiini, Geometridae, new species, new record, Sumatra.

In my previous paper (Sato, 2006), I recorded fifteen species of the genus *Diplurodes* Warren from Sumatra, with descriptions of six new species. I will deal here with the close relatives of *Diplurodes*, the genera *Myrioblephara* Warren, *Necyopa* Walker, *Ectropidia* Warren, *Calcyopa* Stüning and *Nigriplephara* Holloway, from Sumatra. Three species of *Myrioblephara* and one species of *Ectropidia* will be described as new to science, and one species of *Myrioblephara*, two species of *Necyopa*, one species of *Ectropidia* will be newly recorded from Sumatra. For precise identifications, I examined all available type specimens at the Natural History Museum, London, UK.

Detailed notes on the localities of collecting sites in Sumatra were given by Diehl (1982, 1997), Kobes (1985, 1992) and Schintlmeister (1994).

The following acronyms are used to indicate the location of the specimens. BMNH: The Natural History Museum, London, UK. MS: Manfred Sommerer collection, Munich, Germany. NIAES: Natural Resources Inventory Center, National Institute for Agro-Environmental Sciences, Tsukuba, Japan. NSMT: National Science Museum, Tokyo. ZFMK: Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany. ZSM: Zoologische Staatssammlung, Munich, Germany.

Unless stated otherwise, all the specimens including the type material recorded in this paper will be deposited in NIAES.

### *Myrioblephara* Warren, 1893

Type species: *Myrioblephara rubrifusa* Warren, 1893.

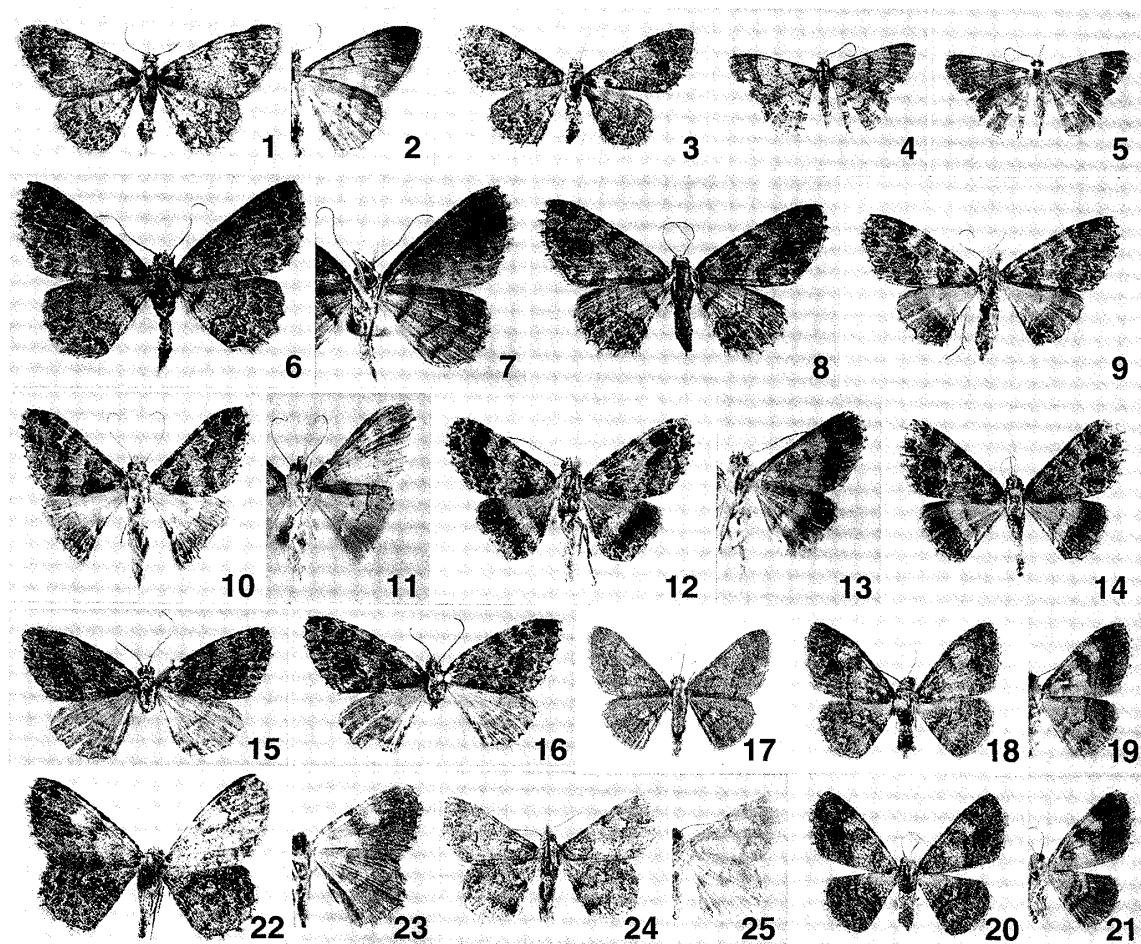
### *Myrioblephara simplaria* (Swinhoe)

*Ectropis simplaria* Swinhoe, 1894: 221.

*Myrioblephara flexilinea*: Holloway, 1976: 82 (*nec* Warren, 1903).

*Myrioblephara flexilinea*: Sato, 1986: 163 (*nec* Warren, 1903).

Besides the nominotypical subspecies from India, the following subspecies have been known (Parsons *et. al.*, 1999): *boarmioides* (Rothschild, 1915: 216) (Seram), *cucullata* Holloway, 1994 (Borneo), *meseres* (Prout, 1935: 232) (Java) and *submarginata* Warren 1906: 144 (Papua New Guinea). Further study will be needed to clarify their status. *M.*



Figs 1–25. *Myrioblephara* spp. 1–3. *M. sinesigno* sp. nov. 1–2. Holotype, ♂. 3. Paratype, ♀. 4–5. *M. ediehli* sp. nov. Holotype, ♂. 6–8. *M. berastagensis* sp. nov. 6–7. Holotype, ♂. 8. Paratype, ♀. 9–16. *Necyopa* spp. 9–11. *N. triangularis* (Warren). 9. ♀. 10–11. ♂. 12–14. *N. ioge* Prout. 12–13. ♂. 14. ♀. 15–16. *N. hemiprasina* (Prout). 15. Syntype, ♂. 16. Syntype, ♀. 17. *Calcyopa rosearia* (Joannis). ♂. 18–25. *Ectropidia* spp. 18–21. *E. minilepidaria* sp. nov. 18–19. Holotype, ♂. 20–21. Paratype, ♀. 22–23. *E. fimbripedata* Warren. ♀. 24–25. *E. faircloughi* (Holloway). ♂.

*tranostigma* (Prout, 1931: 32) was described as a subspecies of *simplaria* from the Philippines (Luzon), but was upgraded to a good species by Sato (2002). In order to avoid confusion, no subspecific name is used for the Sumatran population. Some variation is found in intensity of markings even among the Sumatran specimens, but it is difficult to draw lines between those secured from different habitats. Male genitalia (Fig. 27): Holloway (1994, fig. 535, ssp. *cucullata*, Borneo). Female genitalia (Fig. 46): Holloway (1994, fig. 541, ssp. *cucullata*, Borneo).

Material examined. 3 ♀, Berastagi 1,500 m; 1 ♂, Pematang Siantar; 5 ♂ 3 ♀, Holzweg II 1,050 m; 1 ♀, Holzweg III 1,150 m; 1 ♂, Dairi Mts 1,600 m; 4 ♂ 3 ♀, Tele 1,600–1,800 m; 3 ♀, Prapat 1,150 m; 2 ♂, Samosir 1,600 m; 2 ♂ 4 ♀, Sitahoan 1,200 m; 1 ♀, Sitahoan 80 m; 1 ♀, Gunung Malayu 80 m; 17 ♂ 24 ♀, Bukit Subang; 1 ♂, Mt Talamau 500 m.

Geographical range. India, Nepal, Thailand, Peninsular Malaysia, Borneo, Sumatra, Java, Seram, Sulawesi, New Guinea.

***Myrioblephara sinesigno* sp. nov.** (Figs 1–3)

Length of forewing 14–15 mm, wingspan 23–25 mm. Similar to *simplaria*, but distinguished from it by slightly larger and darker wings, and more elongate forewing. Both wings more densely irrorated with fuscous; discocellular markings more distinct.

Male genitalia (Fig. 26). Similar to those of *simplaria*. Uncus broader, roundish apically; cucullus wider; saccular process straighter, swollen apically.

Female genitalia (Fig. 47). Similar to those of *simplaria*. Colliculum shorter; signum lacking.

Holotype. ♂, “Sumatra occ., Kerinci, Kayu Aro 1,800 m, nördl Sungaipenuh, 20–23. 2. 1976, M. Sommerer leg.”, ZSM after further study, at present in MS. Paratypes. 3 ♀, same data as holotype, MS. N. Sumatra, Berastagi 1,500 m, 1 ♀, 26–28. vii. 1985 (R. Sato); Tele 1,600 m, 1 ♀, 3. vi. 1990 (E. W. Diehl).

Geographical range. Sumatra.

Etymology. This specific name refers to the lack of signum on the bursa copulatrix in the female genitalia.

***Myrioblephara berastagensis* sp. nov.** (Figs 6–8)

Length of forewing 14–17 mm, wingspan 25–32 mm. Male antennal ciliation long. Frons, vertex and labial palpus deep yellow. Tegula and patagium olive yellow mixed with grey scales. Both wings olive yellow, irrorated with black; lines and markings black except for subterminal line; fringe black; cilia chequered black and white. Forewing. Antemedial line undulating; postmedial line deeply outcurved beyond cell and incurved between veins CuA<sub>2</sub> and A; subterminal line whitish, dentate, narrowly margined with black; a pale blotch weakly present outside subterminal line; discocellular marking represented as a black streak. Hindwing. Medial line broad, almost straight; postmedial line deeply incurved between veins CuA<sub>2</sub> and A; subterminal line and discocellular streak as on forewing. Underside. Almost uniformly coloured with fuscous; lines and markings more clearly defined, especially on hindwing.

Male genitalia (Fig. 28). Uncus rod-like; cucullus dilated distad, ventral margin deeply curved medially; saccular process with one spine at the apex and another at the middle.

Female genitalia (Fig. 48). Bursa copulatrix slender with a bowl-like signum distally.

Holotype. ♂, N. Sumatra, Berastagi 1,500 m, xii. 1991 (native collector). Paratypes. 4 ♀, same data as holotype; 1 ♀, Dairi Mts, 5–6. x. 1985 (E. W. Diehl). 1 ♀, Dairi Mts 1,600 m, E. of Sidikalang, 10. x. 1982 (E. W. Diehl), 1 ♂, “Sumatra sept. (presumably), Sitahoan (Simalungun) 1,450 m, 1982, leg. Dr. Diehl”, MS. 1 ♂, “Sumatra sept., Deli, Dolok Merangir 180 m, ix. [19]70–i. [19]71, leg. E. Diehl”, ZSM.

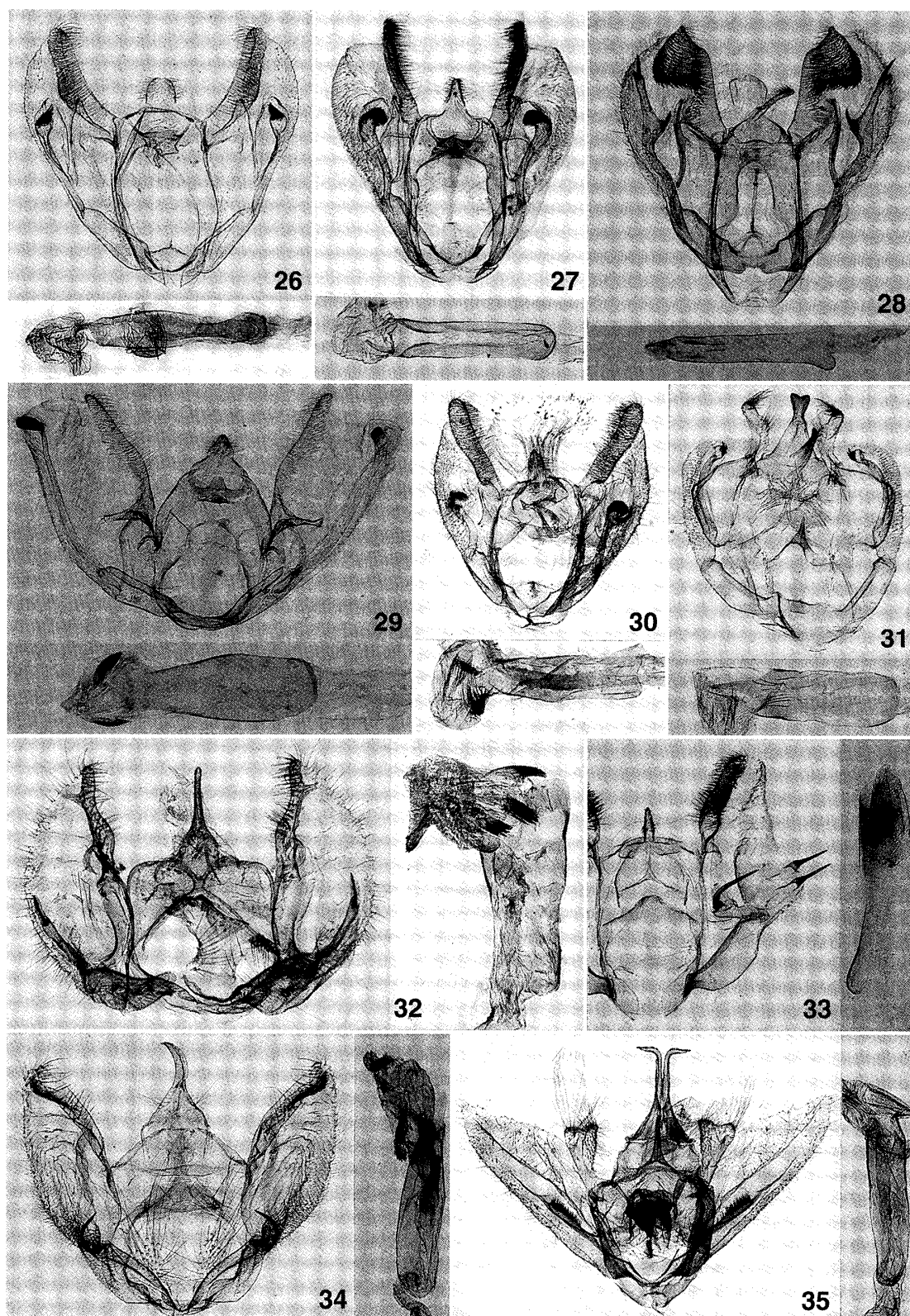
Geographical range. Sumatra.

Etymology. The specific name of this species is derived from the type locality.

***Myrioblephara pallibasis* Holloway**

*Myrioblephara pallibasis* Holloway, 1994: 254.

This species was described from Borneo, and Sumatra and Peninsular Malaysia were in-



Figs 26–35. Male genitalia. 26–31. *Myrioblephara* spp. 26. *M. sinesigno* sp. nov. RS-6110. 27. *M. simplaria* (Swinhoe). RS-6942. 28. *M. berastagensis* sp. nov. RS-6624. 29. *M. ediehli* sp. nov. (aedeagus enlarged) RS-6111. 30. *M. pingasoides* (Warren). RS-6952. 31. *M. pallibasis* Holloway. RS-5952. 32–34. *Ectropidia* spp. 32. *E. faircloughi* (Holloway). RS-6962. 33. *E. harmani* Holloway. RS-1840. 34. *E. fimbripedata* Warren. RS-5450. 35. *Calcyopa rosearia* (Joannis). RS-6958.

cluded in the geographical range by Holloway (1994). The specimens from those localities are different from one another in the male genitalia, though the wing colour and markings are indistinguishable.

Male genitalia (Fig. 31). Slightly different from those of the Bornean population (Holloway, 1994, fig. 538). Saccular process longer, extending to near distal end of valva. In specimens from Peninsular Malaysia, uncus more deeply concave apically, saccular process much shorter, strongly curved basally.

Female genitalia (Fig. 45). Illustrated here for the first time. Similar to those of *semperi* (Sato, 2002, fig. 75) from Mindanao Is. in the Philippines. Middle protuberance of sterigma larger and triangular (square in *semperi*); bursa copulatrix slenderer.

Material examined. 1 ♀, Prapat 1,150 m; 6 ♂ 13 ♀, Holzweg II 1,050 m; 1 ♂, Holzweg IV 1,050 m; 1 ♀, Gunung Malayu 80 m; 3 ♂ 4 ♀, Bukit Subang 1,200 m.

Geographical range. Peninsular Malaysia, Borneo, Sumatra.

### *Myrioblephara pingasoides* (Warren)

*Prorhinia pingasoides* Warren, 1893: 430.

*Myrioblephara pingasoides*: Holloway, 1994: 252.

This species was described on the basis of a male from India (Naga Hills) under the new genus, *Prorhinia*, by Warren (1893). *Prorhinia* was sunk as a synonym of *Myrioblephara* by Holloway (1994). Male (Fig. 30) and female genitalia (Fig. 49) are illustrated here for the first time.

Type material examined. Holotype. ♂, "Type/Naga hills, 3000ft., Sept.–Oct. 1889, W. Doherty/*Prorhinia pingasoides* Warr. Type, ♂/Collectio, H. J. Elwes/Rothchild Bequest B.M. 1939-1", BMNH.

Material examined. 2 ♂, Berastagi 1,500 m; 1 ♀, Karo Highland 900 m; 1 ♀, SRII 400 m, 11 km off Sindar Raya; 5 ♂ 3 ♀, Holzweg II 1,050 m; 1 ♀, Sitahoan 1,200 m; 2 ♂ 1 ♀, Aek Tarum II 150 m; 1 ♀, Gunung Malayu 80 m.

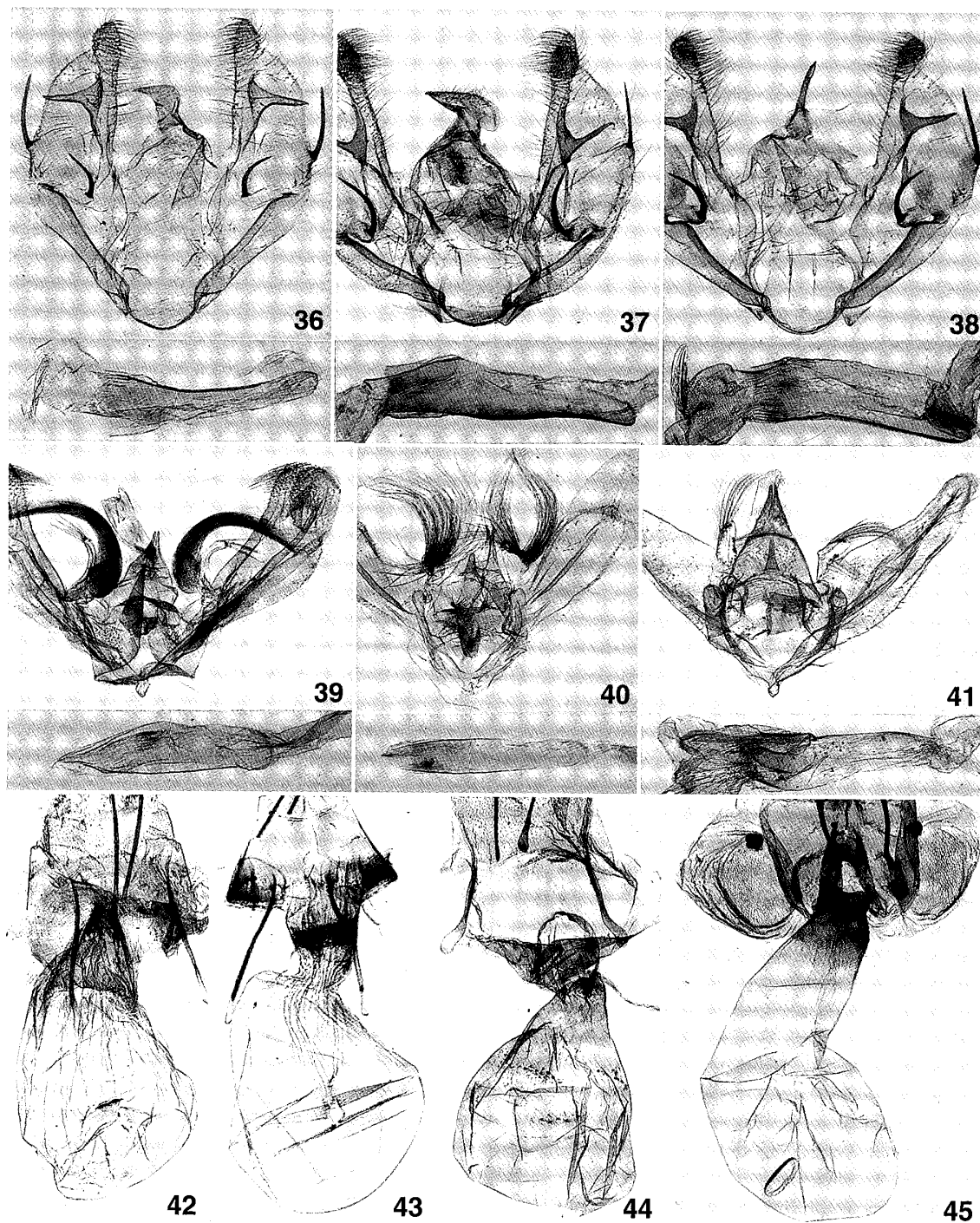
I also examined the following specimens. Borneo: 1 ♀, H. Q., Mt Kinabalu. P. Malaysia: 2 ♂, Genting Highlands 1,700 m; 1 ♂ 2 ♀, Cameron Highlands 1,500 m; 2 ♀, Fraser's Hill; 1 ♀, Perak, Bukit Larut 1,000 m.

Geographical range. India, Peninsular Malaysia (new record), Borneo (new record), Sumatra (new record).

### *Myrioblephara ediehli* sp. nov. (Figs 4–5)

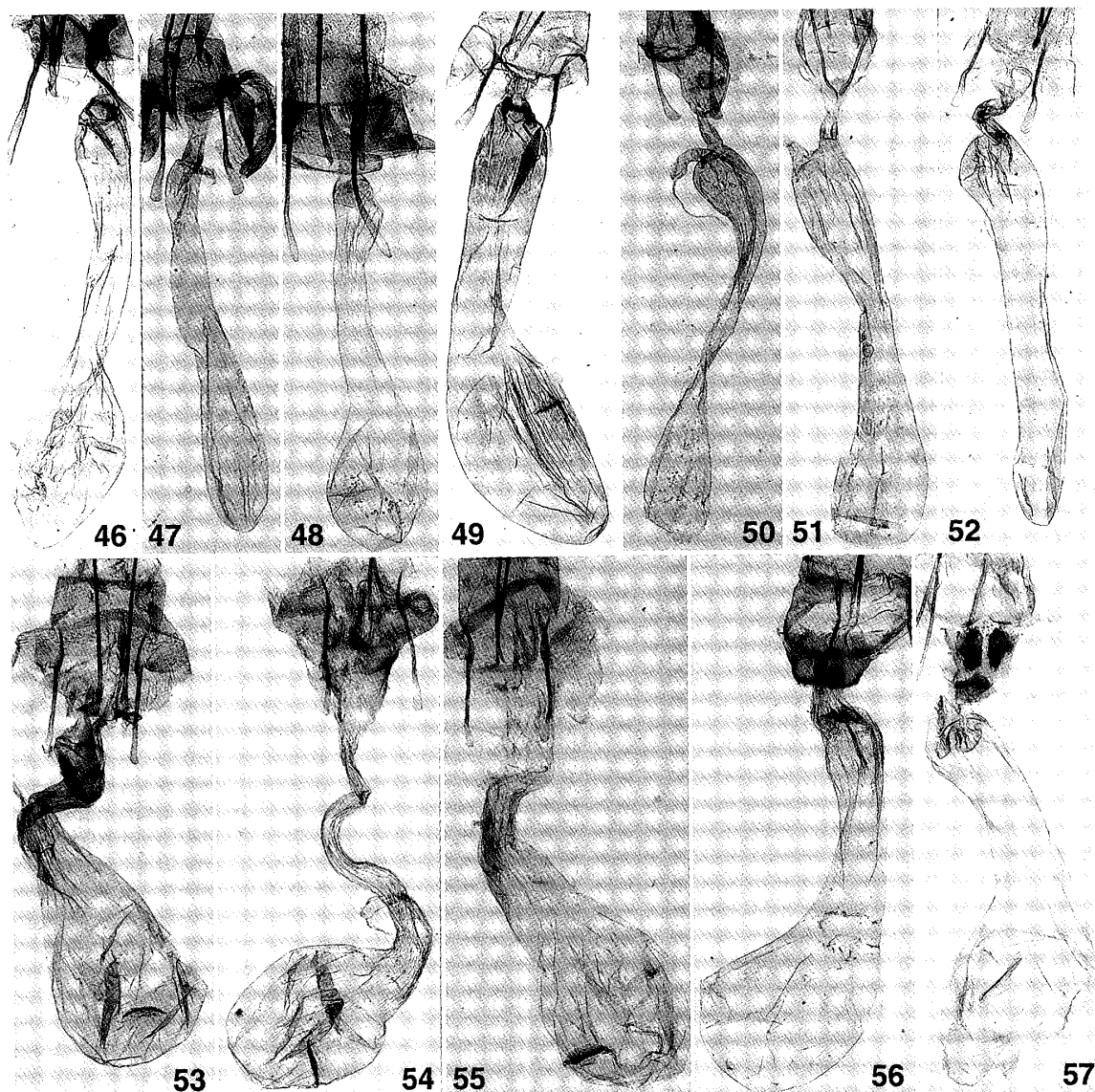
Male. Length of forewing 11 mm, wingspan 22 mm. Both wings grey irrorated with fuscous black; distal area of postmedial line slightly darker than the rest; lines and markings black. Forewing. Antemedial line broad, almost straight; medial line gradually outcurved as a whole; postmedial line straight from costa to vein CuA<sub>1</sub>, then incurved to inner margin; discocellular streak on medial line. Hindwing. Antemedial line lacking; medial line as on forewing; postmedial line undulating; discocellular streak indistinct. Underside. Similar to upperside, but darker as a whole and distal darker area more contrasting with the rest. Female unknown.

Male genitalia (Fig. 29). Uncus short, subtriangular, apex roundish. Gnathos heavily scler-



Figs 36–41. Male genitalia. 36–38. *Ectropidia* spp. 36. *E. minilepidaria* sp. nov. RS-5983. 37. *E. illepidaria* Holloway. RS-6925. 38. *E. quasilepidaria* Holloway. RS-6922. 39–41. *Necyopa* spp. 39. *N. triangularis* (Warren). RS-5974. 40. *N. ioge* Prout. RS-6937. 41. *N. hemiprasina* (Prout). RS-6964.

Figs 42–45. Female genitalia. 42. *Ectropidia harmani* Holloway. RS-6960. 43. *Nigriblephara radula* Holloway. RS-6961. 44. *Calcyopa rosearia* (Joannis). RS-6959. 45. *Myrioblephara pallibasis* Holloway. RS-6947.



Figs 46–57. Female genitalia. 46–49. *Myrioblephara* spp. 46. *M. simplaria* (Swinhoe). RS-6943. 47. *M. sinesigno* sp. nov. RS-6919. 48. *M. berastagensis* sp. nov. RS-6623. 49. *M. pingasoides* (Warren). RS-6953. 50–52. *Necyopa* spp. 50. *N. triangularis* (Warren). RS-6954. 51. *N. ioge* Prout. RS-6957. 52. *N. hemiprasina* (Prout). RS-6941. 53–57. *Ectropidia* spp. 53. *E. minilepidaria* sp. nov. RS-6010. 54. *E. illepidaria* Holloway. RS-6923. 55. *E. quasi-lepidaria* Holloway. RS-6230. 56. *E. fimbripedata* Warren. RS-6766. 57. *Ectropidia semi-jubata* (Prout). RS-6234.

rotized with medial trapezoid plate. Valva broad with weak cucullus and long saccular process; a long rod-like projection from basal part of costa; saccular process extending to distal end of valva, with many spinules at apex. Aedeagus vesica with two sets of cornuti, each composed of several short spines.

Holotype. ♂, “N-Sumatra, Deli, Dolok Merangir 180 m, 1973, leg. E. Diehl”, ZSM.

Geographical range. Sumatra.

Etymology. The specific name is dedicated to the late Dr Eduard W. Diehl, who had been working on the moths of Sumatra for more than 30 years.

***Necyopa* Walker, 1861**

Type species: *Necyopa flatipennata* Walker, 1862.

***Necyopa flatipennata* Walker**

*Necyopa flatipennata* Walker, 1862: 1079.

*N. recticomata* (Swinhoe, 1903) (Thailand) had been a junior synonym of *N. flatipennata* Walker, 1862 (Borneo) since Holloway (1994), but later was restored as a distinct species by Stüning (2000: 135). In this species, a large patch of strongly modified scales is developed on the hindwing underside near the tornus, while in *recticomata* it is absent (Stüning, 2000: 136). Male genitalia: Holloway (1994, fig. 542, Borneo). Female genitalia: not examined.

Material examined. 1 ♂, SR II 480 m; 1 ♂, SR III 640 m; 2 ♂, Sarolangun 200 m; 1 ♂, Ache Ketambe.

Geographical range. Thailand, Borneo, Sumatra.

***Necyopa triangularis* (Warren) (Figs 9–11)**

*Polylophodes triangularis* Warren, 1896: 405.

*Necyopa anetotasis* Prout, 1935: 234.

*Myrioblephara picta* Warren, 1896: 404. **Syn. nov.**

This species is similar to *N. ioge* in wing colour and maculation, but is distinguished by larger size and the development of modified scales near the tornus on the underside of the hindwing in male, and by the more elongate forewing in the female. Male (Fig. 39) and female genitalia (Fig. 50) are illustrated here for the first time.

Material examined. 1 ♂, Berastagi 1,500 m; 1 ♂, Mt Sibayak II 1,500 m; 1 ♂, Mts Dairi 1,500 m; 4 ♀, Holzweg III 1,150 m; 2 ♂ 1 ♀, Mt Talamau 1,800 m; 1 ♂ 1 ♀, Tele 1,600 m; 1 ♀, Genting Gadjah 1,570 m.

Type material examined. Holotype of *Polylophodes triangularis* Warren. ♂, “Type/Bandung, Java/*Polylophodes triangularis* Warr., Type, ♂/Rothschild Bequest B.M.1939-1/Geometridae genitalia slide No. 13193”, BMNH. Syntype of *Necyopa anetotasis* Prout. ♂, “Type/Kletak Tengger, E. Java, 6,000’, May 1934, (J. P. A. Kalis)/*Necyopa anetotasis* Prout, type, ♂/Rothschild Bequest B. M. 1939-1/Geometridae genitalia slide No. 13192”, BMNH. Holotype of *Myrioblephara picta* Warren. ♀, “Type/Java merid., 1,500’, 1891, H. Fruhstorfer/*Myrioblephara picta* Warr. Type, ♀/Rothschild Bequest B. M. 1939-1/ Geometridae genitalia slide No. 21323”, BMNH.

Geographical range. Sumatra (new record), Java.

***Necyopa ioge* Prout (Figs 12–14)**

*Necyopa ioge* Prout, 1932: 102.

*Diplurodes ioge* Prout: Holloway, 1976: 80.

In size and general appearance, this species most resembles *N. subtriangula* Prout from Borneo, and can best be identified on examination of the male genitalia. As for the separation from *triangularis*, see the previous species. No reliable differences among *ioge*, *triangularis* and *subtriangula* have been found in the female genitalia. Male genitalia (Fig. 40): Holloway (1994, fig. 546). Female genitalia (Fig. 51): illustrated here for the first time.

Type material examined. Holotype of *Necyopa ioge* Prout. ♂, “Type/B.N.Borneo, Mt. Kinabalu, Lumu Lumu, 5,500 ft., April 16th. 1929/B351/ Presented by F. M. S.Museum, B. M. 1935-543/Geometridae genitalia slide No. 13198”, BMNH.

Material examined. 1 ♂ 1 ♀, Berastagi 1,500 m; 1 ♀, Mts Dairi 1,600 m; 7 ♂ 7 ♀, Holzweg II 1,050 m; 8 ♂ 7 ♀, Holzweg III 1,150 m; 1 ♀, Pematang Siantar 350 m; 1 ♂ 2 ♀, Sitahoan 1,450 m; 1 ♂, Gunung Malayu 80 m; 1 ♂, Bukit Subang 1,200 m.

Geographical range. Borneo, Sumatra (new record).

Holloway (1994) mentioned that specimens from S. Burma and Peninsular Malaysia were different from those from Borneo in the male genitalia (valve costal process less broadly triangular) and the abdominal coremata (less strongly developed). In addition to those specimens, I have some from Thailand and Vietnam, which are left unidentified. A pair of specimens recorded from Thailand as *ioqe* (Sato, 1996) have to be reexamined. Further study will be needed to confirm their taxonomic status.

### *Necyopa hemiprasina* (Prout), **comb. nov.** (Figs 15–16)

*Boarmia hemiprasina* Prout, 1928: 154.

*Hypomecis hemiprasina*: Parsons et al., 1999: 474.

A pair of syntypes are illustrated as in Figs 15 and 16. Yellowish forewing with dotted or spotted black lines is characteristic, so it is easily separable from the other congeners. Male (Fig. 41) and female genitalia (Fig. 52) are shown here for the first time.

Type material examined. Syntypes, ♂, “*Boarmia hemiprasina* Prout, ♂, paratype/7. 22, Slopes of Mt. Korintji, S.W. Sumatra 7300 ft, Aug.–Sept. 1921, C. F. & J. Pratt/Joicey Bequest. Brit. Mus. 1934-120/Geometridae genitalia slide No. 17585”, ♀, “7. 22, Slopes of Mt. Korintji, S.W. Sumatra 7300 ft, Aug.–Sept. 1921, C. F. & J. Pratt/Joicey Bequest. Brit. Mus. 1934-120/Geometridae genitalia slide No. 17586”, BMNH.

Material examined. 1 ♀, W. Sumatra, Mt Talamau 1,800 m, 11. x. 1991 (Graul & Schintlmeister). 1 ♂, Sumatra occ., Jambi, Kerinci 2,460 m, 14. ii. 1989 (Plössl & G. Tarmann), MS.

Geographical range. Sumatra.

### *Calcyopa* Stüning, 2000

Type species: *Calichodes difoveata* Wehrli, 1943.

### *Calcyopa rosearia* (Joannis) (Fig. 17)

*Ectropis rosearia* Joannis, 1929: 511.

*Calcyopa rosearia*: Stüning, 2000: 135.

The genus *Calcyopa* was proposed by Stüning (2000: 134) as the replacement name for *Calichodes* Wehrli, 1943: 544, which was a junior homonym of *Calichodes* Warren, 1897: 246, and this species was assigned to it. Male (Fig. 35) and female genitalia (Fig. 44) are illustrated here for the first time.

Material examined. 6 ♂ 6 ♀, Holzweg II 1,050 m; 1 ♂, Holzweg III 1,200 m.

Geographical range. China (Yunnan), Vietnam, Thailand, Sumatra.

***Ectropidia* Warren, 1895.**

Type species: *Acidaria exprimata* Walker, 1861.

***Ectropidia exprimata* (Walker)**

*Acidalia exprimata* Walker, 1861: 764.

*Ectropidia exprimata*: Warren, 1895: 126; Holloway, 1994: 258.

*Diplurodes exprimata*: Barlow, 1982: 130.

Male genitalia: Holloway (1994, fig. 547, Borneo), Sato (2002, fig. 48, Mindanao). Female genitalia: Sato (2002, fig. 65, Palawan).

Material examined. 4 ♀, Karo Highland 900 m; 6 ♂ 7 ♀, Holzweg II 1,050 m; 1 ♂ 3 ♀, Prapat; 2 ♂, Gunung Malayu 80 m; 8 ♂ 4 ♀, Bukit Subang 1,200 m; 1 ♂, Barus (Sibolga), Mt Pinapan.

Geographical range. Peninsular Malaysia, Borneo, Sumatra, Java, New Guinea, Philippines (Luzon, Leyte, Negros, Mindanao, Palawan).

***Ectropidia harmani* Holloway**

*Ectropidia harmani* Holloway, 1994: 259.

Holloway (1994) recorded this species from Sumatra on one male taken at Prapat (RS-1840). Male genitalia (Fig. 33): Holloway (1994, fig. 550). Female genitalia (Fig. 42): illustrated here for the first time.

Material examined. 1 ♂ (RS-1840), Prapat; 2 ♀, Holzweg II 1,050 m; 1 ♀, Sungei Kopas II 250 m.

Geographical range. Borneo, Sumatra.

***Ectropidia fimbripedata* Warren (Figs 22–23)**

*Ectropidia fimbripedata* Warren, 1900: 113.

*Diplurodes fimbripedata*: Holloway, 1976: 80; Barlow, 1982: 130.

Male genitalia (Fig. 34): Sato (2002, fig. 50, Panay). Female genitalia (Fig. 56): illustrated here for the first time.

Type material examined. Holotype. ♂, “Type/Gunung Ijau [Peninsular Malaysia, Perak]/2–3,000 ft. III. 98, Butler/Geometridae genitalia slide No. 13172”, BMNH.

Material examined. 1 ♂, Dairi West 600m; 2 ♂, Holzweg II 1,050m; 1 ♀, Dolok Merangir 170m; 1 ♂, Lampung.

Geographical range. Peninsular Malaysia, Borneo, Sumatra, Philippines (Samar, Leyte, Panay, Negros, Mindanao).

As mentioned in my previous paper (Sato, 2002: 248), the population from Borneo is different from the others in the male genitalia (Holloway, 1994, fig. 548; Sato, 2002, fig. 51), but the subspecific designation has not been confirmed because of lack of female material from Borneo.

***Ectropidia faircloughi* (Holloway), **comb. nov.** (Figs 24–25)***Satoblephara faircloughi* Holloway, 1994: 267.

This species was described from Borneo on a single male (Brunei) and was tentatively placed in *Satoblephara* Holloway “as it shares features of the basal zone of the sacculus in the male genitalia” (Holloway, 1994). It is similar to *E. fimbripedata* in appearance, and the male abdomen and genitalia indicate that it should be assigned to *Ectropidia* rather than to *Satoblephara*, for the following reasons. Abdominal segment with a pair of strong coremata between 3 and 4, a weak one between 4 and 5, and a massive one between 6 and 7, while in *Satoblephara*, a strong one between 4 and 5, and weak ones on 6 and between 7 and 8. In the male genitalia, ventral margin of valva costa strongly sclerotized with narrow flaps subbasally and subapically as in *fimbripedata*, while in *Satoblephara* costa more weakly sclerotized, not modified; sacculus process with a single long spine at its apex instead of a tuft of setae as in *Satoblephara*.

Male genitalia (Fig. 32). Sacculus process shorter than that of the Bornean specimen shown by Holloway (1994, fig. 570). Female genitalia not examined.

Material examined. 1 ♂, “Sumatra sept., (Simalungun), Holzweg 3, 1,150m, 14 km NE Prapat, 98°58E/2°46N, 6. iv. 1983, leg. Dr. E.W.Diehl”, MS.

Geographical range. Borneo, Sumatra (new record).

***Ectropidia semijubata* (Prout)***Diplurodes semijubata* Prout, 1929: 74.*Ectropidia semijubata*: Holloway, 1994: 259.

Holloway (1994) included Sumatra within the geographical range of this species, but I have not yet examined any specimens from Sumatra. Male genitalia: Holloway (1994, fig. 545, Borneo). Female genitalia (Fig. 57): illustrated here for the first time from one female from Peninsular Malaysia (Fraser’s Hill).

Type material examined. Syntype. ♂, “Type/MALAY PENIN. Selangor, Bukit Kutu 2,500 ft, April, 13th 1926, H. M. Pendlebury/*Diplurodes semijubata* Prout, ♂, type”, BMNH.

Geographical range. Peninsular Malaysia, Borneo, Sumatra.

***Ectropidia illepidaria* (Walker)***Acidalia illepidaria* Walker, 1861: 765.*Ectropidia illepidaria*: Holloway, 1994: 260.*Myrioblephara pustulata* Warren, 1900: 114.

Male genitalia (Fig. 37): Holloway (1994, fig. 551, Borneo), Sato (2002, fig. 54, Sumatra). Female genitalia (Fig. 54): Holloway (1994, fig. 552, Borneo), Sato (2002, fig. 68, Borneo).

Material examined. 1 ♂, Dairi West 600 m; 1 ♂, Dairi Berge 850 m; 1 ♂ 1 ♀, Pematang Siantar; 2 ♂ 4 ♀, Prapat; 4 ♂ 3 ♀, Holzweg II 1,050 m; 1 ♀, Holzweg III 1,150 m.

Geographical range. Peninsular Malaysia, Borneo, Sumatra.

***Ectropidia quasilepidaria* Holloway***Ectropidia quasilepidaria* Holloway, 1994: 260.

Male genitalia (Fig. 38): Holloway (1994, fig. 552, Borneo), Sato (2002, fig. 55, Sumatra). Female genitalia (Fig. 55): Holloway (1994, fig. 553, Borneo), Sato (2002, fig. 69, Sumatra).

Material examined. 1 ♂ 5 ♀, Holzweg II 1,050 m; 1 ♀, Pematang Siantar; 1 ♂, SRII 480 m; 1 ♂, Dairi West 600 m; 1 ♂, Gunung Malayu 80 m.

Geographical range. Borneo, Sumatra.

***Ectropidia minilepidaria* sp. nov.** (Figs 18–21)

Length of forewing 11–13 mm, wingspan 20–22 mm. Similar to the previous two species and *E. philippidaria* Sato, 2002: 248, from the Philippines, but smaller in size and paler in colour. There are no reliable external characteristics to be distinguished from the congeners, because of considerable individual variation. The most useful characters for separation of this species are found in the male and female genitalia.

Male genitalia (Fig. 36). Similar to those of *illepidaria* (Fig. 37) and *quasilepidaria* (Fig. 38). Uncus more similar to that of *illepidaria*, but shorter and roundish as a whole; inward projection of valva costa as in *quasilepidaria*, more distally situated than in *illepidaria*. Also similar to those of *philippidaria* (Sato, 2002, fig. 52), but distinct in shape of uncus.

Female genitalia (Fig. 53). More similar to those of *quasilepidaria* (Fig. 55) than *illepidaria* (Fig. 54) in having a broad bursa copulatrix. Most similar to those of *philippidaria* (Sato, 2002, fig. 67), but bursa copulatrix more strongly curved posteriorly.

Holotype. ♂. N. Sumatra, Sumatera Utara, Prapat, Holzweg IV 1,050 m, 7. vi. 1994 (H. Inoue). Paratypes. 1 ♂ 1 ♀, same data as holotype; Karo Highland 900 m, 1 ♀, iii. 1978 (T. Hasegawa); Prapat 1,150 m, 3 ♂ 12 ♀, 15. v–3. vi. 1983, 1 ♀, 10. vi. 1983, 2 ♀, 18. vii. 1983 (E. W. Diehl); P. Siantar, 1 ♂, 6. v. 1990 (E. W. Diehl); Holzweg II 1,050 m, 1 ♂, 20. v–22. vii. 1985, 2 ♀, 9. ix. 1985, 1 ♀, 11. v. 1986, 1 ♂ 1 ♀, 4. vi. 1986, 1 ♂, 7. vi. 1986, 1 ♀, 12. vi. 1986, 1 ♂ 3 ♀, 14. vi. 1986, 1 ♀, 16. vi. 1986, 1 ♂ 1 ♀, 18. vi. 1986, 1 ♂, 29. vi. 1986, 1 ♀, 2. vii. 1986, 1 ♀, 2. ix. 1986, 2 ♀, 6. ix. 1986, 1 ♀, 23. ix. 1986, 1 ♀, 30. ix. 1986, 4 ♀, 21. x. 1986, 1 ♀, 19. xi. 1986, 1 ♀, 29. xi. 1986, 1 ♀, 7. xii. 1986, 1 ♀, 29. ix. 1989, 1 ♀, 5. x. 1989, 1 ♀, 23. x. 1989, 1 ♀, 19. xi. 1989, 3 ♀, 22. xi. 1989, 1 ♀, 5. x. 1989, 1 ♀, 23. i. 1990, 1 ♂, 18. iii. 1990, 1 ♀, 21. iii. 1990, 1 ♂, 1. vi. 1990, 1 ♀, 13. vii. 1990, 2 ♀, 24. vii. 1990, 1 ♂, 12. x. 1990, 1 ♂, 6. xi. 1990, 1 ♀, 10. xi. 1990, 1 ♀, 17. xi. 1990, 1 ♀, 10. xii. 1990, 1 ♀, 14. xii. 1990, 2 ♂, 20. xii. 1990, 1 ♀, 11. i. 1991, 1 ♀, 28. ii. 1991, 1 ♀, 11. ix. 1991, 1 ♂, 9. iv. 1992 (E. W. Diehl), 1 ♂ 1 ♀, 2. vi. 1994 (H. Inoue); 1 ♀, 22–24. vii. 1985, 1 ♀, 31. vii–1. viii. 1985 (R. Sato), 2 ♀, 30. viii–28. ix. 1991 (Graul & Schintlmeister); Gunung Malayu 80 m, 4 ♂ 1 ♀, 4–5. v. 1983 (E. W. Diehl); Holzweg III 1,200 m, 1 ♀, 30–31. vii. 1985 (R. Sato); Dairi East 1,800 m, 1 ♀, 2–3. vii. 1983 (E. W. Diehl); Samosir 1,600 m, 3 ♂, 20. ix. 1991 (Graul & Schintlmeister); Sitahoan 1,200 m, 1 ♂, 4–5. vi. 1994 (H. Inoue); Bukit Subang 1,200m, 4 ♂ 2 ♀, 19. x. 1983 (Schintlmeister, Roesler & Widagdo); SRII, 1 ♂, 16. iii. 1991 (E. W. Diehl); Lampung, 3 ♂, x. 1995 (native collector). Holzweg III 1,150 m, 14 km NE Prapat, 1 ♀, 5. vii. 1983, 1 ♀, 14. x. 1983, 1 ♂ 1 ♀, 10–25. vi. 1984, 1 ♂, 1–16. iv. 1985 (E. W. Diehl), MS.

Geographical range. Sumatra. More common than the previous two species in Sumatra.

Etymology. This species is very close to *illepidaria* but is smaller in size.

***Nigriplephara* Holloway, 1994**

Type species: *Nigriplephara radula* Holloway, 1994.

***Nigriplephara radula* Holloway**

*Nigriplephara radula* Holloway, 1994: 268.

Male genitalia: Holloway (1994, fig. 572, Borneo). Female genitalia (Fig. 43): illustrated here for the first time.

Material examined. 9 ♂ 8 ♀, Holzweg II 1,050 m; 1 ♂ 3 ♀, Prapat 1,150 m; 1 ♀, Dairi West 600 m; 1 ♂, Bilitung, Mt Dempo.

Geographical range. Peninsular Malaysia, Borneo, Sumatra.

**Acknowledgements**

I wish to express my cordial thanks to Mr M. Sommerer (Munich) for the loan of many specimens including those taken by the late Dr E. W. Diehl (Sumatra), to Drs D. Stüning (ZFMK), A. Hausmann (ZSM) and M. Owada (NSMT), and Messrs D. J. Carter (retired) and G. Martin (BMNH) for their kind help in examining the specimens under their curation, and to Dr J. D. Holloway (BMNH) for his identification of several specimens from Sumatra. I deeply thank Dr H. Inoue (Iruma) for his gift of specimens taken by himself, his invaluable advice and correcting the original manuscript. My sincere thanks are also due to Dr A. Schintlmeister (Dresden), Messrs K. Yazaki (Tokyo), A. Sasaki (Akita), K. Umetsu (Akita), and T. Masui (Takamatsu) for their kindness in offering material.

**References**

- Barlow, H.S., 1982. *An Introduction to the Moths of South East Asia*. Kuala Lumpur.
- Diehl, E. W., 1982 (not "1980"). Die Sphingiden Sumatras. *Heterocera. sumatr.* **1**: 1–97.
- , 1997. Angaben zur Lokalisation der Fundorte (Notes on the localisation of collecting sites). *Heterocera. sumatr.* **12**: 3–16.
- Holloway, J. D., 1976. *Moths of Borneo with special Reference to Mount Kinabalu*. Malayan Nature Society, Kuala Lumpur.
- , 1994 (not "1993"). The moths of Borneo: family Geometridae, subfamily Ennominae. [=The *Moths of Borneo*, Part 11]. *Malay. Nat. J.* **47**: 1–309, pls 1–19, 593 figs.
- Joannis, J. de, 1929. Lépidoptères Hétérocères du Tonkin. *Annls Soc. ent. Fr.* **98**: 361–552.
- Kobes, L. W. R., 1992. Notes on collecting localities. *Heterocera. sumatr.* **7**: 5.
- , 1985. Die Thyatiridae, Agaristidae und Noctuidae (Teil 1: Pantheinae und Catocalinae) von Sumatra. *Heterocera. sumatr.* **4**: 1–92, 1–21, pls 1–22.
- Parsons, M. S., Scoble, M. J., Honey, M. R. & L. M. Pitkin, 1999. In Scoble, M. J. (Ed.), *Geometrid Moths of the World: a Catalogue* (Lepidoptera, Geometridae). 1016 pp., Index 129 pp. CSIRO Publishing, Collingwood/Apollo Books/Stenstrup.
- Prout, L. B., 1928. New Sumatran Geometridae in the Joicey collection. *Bull. Hill Mus. Witley* **2** (2): 142–160.
- , 1929. New species and sub-species of Geometridae. *Novit. zool.* **35**: 63–77.
- , 1931. New Geometridae from the Indo-Australian region. *Novit. zool.* **37**: 32.
- , 1932. On the Geometridae of Mount Kinabalu. *J. fed. Malay St. Mus.* **17**: 39–111.
- , 1935. New Geometridae from East Java. *Novit. zool.* **39**: 221–238.
- Rothschild, L. W., 1915. On the Lepidoptera from the islands of Ceram, Buru, Bali, and Misol. *Novit. zool.* **22**: 209–227.
- Sato, R., 1986. One new species and five unrecorded species of the Ennominae (Geometridae) from Taiwan. *Japan Heterocerists' J.* **136**: 163–165.
- , 1996. Records of the Boarmiini (Geometridae; Ennominae) from Thailand III. *Trans. lepid. Soc.*

- Japan* **47**: 223–236.
- , 2002. Descriptions and records of the genera *Ectropidia* Warren, *Nigriplephara* Holloway and *Myrioblephara* Warren (Geometridae, Ennominae) from the Philippines. *Trans. lepid. Soc. Japan* **53**: 245–259.
- , 2006. The genus *Diplurodes* Warren (Geometridae, Ennominae) of Sumatra. *Trans. lepid. Soc. Japan* **57**: 92–104.
- Schintlmeister, A., 1994. An annotated and illustrated check-list of the Lymantriidae of Sumatra with descriptions of new species (Lepidoptera, Lymantriidae). *Heterocera. sumatr.* **7**: 113–180.
- Stüning, D., 2000. Additional notes on the Ennominae of Nepal, with descriptions of eight new species. *Tinea* **16** (Suppl. 1): 94–152.
- Swinhoe, C., 1894. A list of the Lepidoptera of the Khasia Hills. Pt. 2. *Trans. ent. Soc. Lond.* **1894** (2): 145–223, pl. 2.
- Walker, F., 1861. *List of the Specimens of lepidopterous Insects in the Collection of the British Museum*. Part **23**. London.
- , 1862. *List of the Specimens of lepidopterous Insects in the Collection of the British Museum*. Part **24**. London.
- Warren, W., 1893. On new genera and species of moths of the family Geometridae from India, in the collection of H. J. Elwes. *Proc. zool. Soc. Lond.* **1893**: 341–434, pls 30–32.
- , 1895. New species and genera of Geometridae in the Tring Museum. *Novit. zool.* **2**: 82–159.
- , 1896. New species of Drepanulidae, Thyrididae, Uraniidae, Epiplemidae, and Geometridae in the Tring Museum. *Novit. zool.* **3**: 335–419.
- , 1897. New genera and species of Drepanulidae, Thyrididae, Epiplemidae, Uraniidae, and Geometridae in the Tring Museum. *Novit. zool.* **4**: 195–262.
- , 1900. New genera and species of Drepanulidae, Thyrididae, Epiplemidae and Geometridae from the Indo-Australian and Palaearctic Regions. *Novit. zool.* **7**: 98–116.
- , 1903. New Uraniidae, Drepanulidae and Geometridae from British New Guinea. *Novit. zool.* **10**: 343–413.
- , 1906. New Drepanulidae, Thyrididae, Uraniidae, and Geometridae, from British New Guinea. *Novit. zool.* **13**: 73–161.
- Wehrli, E., 1943. Geometridae. In Seitz A. (Ed.), *Gross-Schmetterlinge der Erde* **4** (Suppl.). Stuttgart.

## 摘 要

スマトラの *Myrioblephara* 属とその近縁属 (シャクガ科, エダシャク亜科) (佐藤力夫)

前報 (Sato, 2006) では, Sumatra の *Diplurodes* 属を扱い, 6 新種を含む 15 種を記録した. 本報では, *Diplurodes* に近縁の 5 属について, 故 Dr E. W. Diehl (スマトラ) や Mr M. Sommerer (ミュンヘン) をはじめ多くの方から提供された標本に, 筆者自身が 1985 年に採集した標本も加えて検討し, *Myrioblephara* 属 6 種, *Necyopa* 属 4 種, *Calcyopa* 属 1 種, *Ectropidia* 属 8 種, *Nigriplephara* 属 1 種を確認することができた. そのうち次の 4 種は新種であり, 4 種は初記録であった.

新種. *Myrioblephara sinesigno* Sato, *M. berastagensis* Sato, *M. ediehli* Sato, *Ectropidia minilepidaria* Sato. いずれも現時点では Sumatra 以外からは未知.

初記録種. *Myrioblephara pingasoides* (Warren), *Necyopa triangularis* (Warren), *N. ioge* Prout, *Ectropidia faircloughi* (Holloway).

(Accepted March 8, 2006)